

SD300(A) AND SD300T(A) ADDRESSABLE PHOTOELECTRONIC SMOKE DETECTOR INSTALLATION AND MAINTENANCE INSTRUCTIONS

This detector must be installed in compliance with the system installation manual. The installation must meet the requirements of the local Authority Having Jurisdiction (AHJ). Detectors will offer maximum protection if the installation meets the requirements of the National Fire Protection Association (NFPA); refer to NFPA 72. The *Guide For Proper Use of System Smoke Detectors* is available from Fire-Lite and provides detailed information on detector spacing, placement, zoning and special applications.

NOTICE: This manual should be left with the owner/user of this equipment.

IMPORTANT: This detector must be tested and maintained regularly following NFPA 72 requirements. This detector should be cleaned at least once a year.

GENERAL DESCRIPTION

The model SD300(A) combines a photoelectronic smoke sensing chamber with addressable communications. The detector uses an optical smoke sensing chamber and transmits information through a communication line to a control panel. Two rotary dial decade switches allow setting of the detector's address. Model SD300T(A) has the same specifications as Model SD300(A), but also features a built-in, restorable, fixed-temperature (135°F), thermal detection unit.

An LED on the detector provides an indication of the detector's status. Coded signals, transmitted from the panel, control the LED to blink, latch on, or latch off. In normal operation, the detector LED blinks in standby, and latches on in alarm.

A recessed "push to test" switch allows testing of the detector's alarm capability with a small rod or screwdriver. The detector provides a test module socket for testing the detector's sensitivity with the MOD400R test module (sold separately).

Both models include a plug-in screw terminal block and a mounting bracket. The terminal block allows the detector to be disconnected from the system without loss of power to the remaining loop. The mounting bracket includes a tamper resistant capability that, when enabled, prevents detector removal from the base without the use of a tool (Figure 4).

COMPATIBILITY REQUIREMENTS

Models SD300(A) and SD300T(A) require compatible addressable communications to function properly. **Connect this detector to compatible addressable Fire-Lite control panels only.**

MOUNTING

Models SD300(A) and SD300T(A) are supplied with a mounting bracket (Figure 4) that permits mounting the detector to:

1. A single gang box,
2. Directly to a 3-1/2 inch or 4 inch octagonal box, or
3. To a 4 inch square electrical box by using a plaster ring.

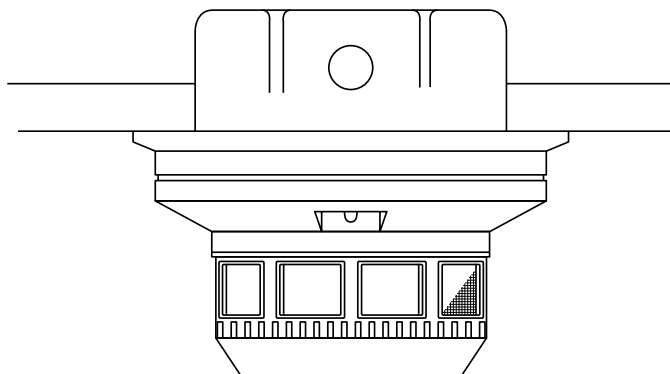


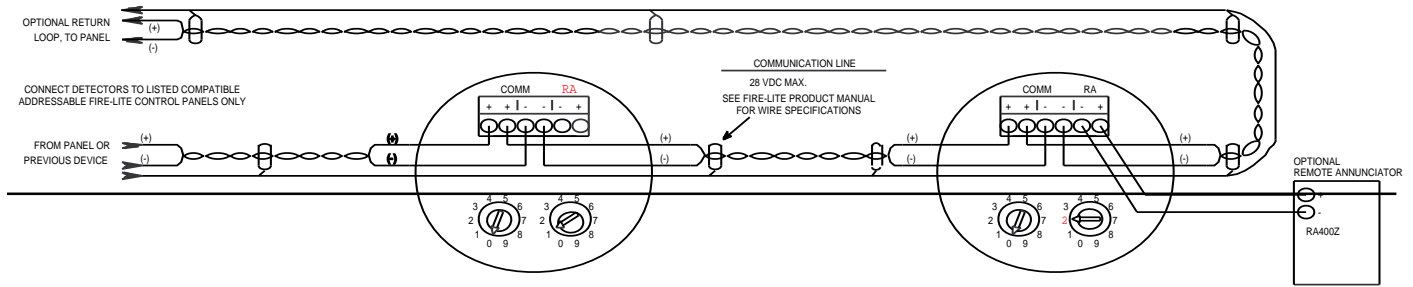
Figure 1. Mounted SD300(A)

A78-1394-00

SPECIFICATIONS & WIRING DIAGRAM

Operating Voltage Range: 15 – 32 Volts DC
 Maximum Standby Current: 230 μ A @ 24 VDC
 Maximum Avg. Standby Current: 330uA @ 24 VDC
 (One communication every 5 seconds with LED blink enabled)
 Maximum Alarm Current (LED on): 6.5 mA @ 24VDC
 Loop Resistance: 40 W Maximum
 Air Velocity: 3000 Ft/Minute (15 m/S)

Diameter: 5.5 inches (14.0 cm)
 Height: 3.2 inches (8.1 cm)
 Temperature: SD300 - 0° to 60°C (32° to 140°F)
 NOTE: Do not install in locations where normal ambient temperature extends beyond 0°C to 49°C (32°F to 120°F)
 SD300T - 0° to 60°C (32° to 100°F)
 Relative Humidity: 5% to 95%, noncondensing



A78-2441-01
 Figure 2. Wiring Diagram

WIRING INSTALLATION GUIDELINES

WARNING: Disconnect power from the communication line before installing detectors.

All wiring must conform to applicable local codes, ordinances, and regulations.

1. Mount adapter bracket to junction box as shown in Figure 4. Enable the tamper resist feature, if desired.
2. Wire the plug-in screw terminal block per the wiring diagram (Figure 2) and the wiring guide (Figure 3). Do not over-tighten the screws in the terminal block.
3. Set the desired address on the detector's address switches. Record the address and loop on the adapter bracket, if desired.
4. Plug the screw terminal block into the detector as shown in Figure 3. The terminal block can only be inserted one way.
5. Attach the detector to the mounting bracket. Alignment marks on the detector should be aligned with the arrows on the mounting bracket. Push the detector against the adapter bracket and rotate it clockwise to secure it in place (Figure 4). A mounted detector is shown in Figure 1.
6. After all detectors have been installed, apply power to the control unit and activate the communication line.
7. Test the detector(s) as described in the **TESTING** section of this manual.

All wiring must be installed in compliance with the National Electrical Code, applicable local codes, and any special requirements of the local Authority Having Jurisdiction. Proper wire gauges should be used. The conductors used to connect smoke detectors to control panels and accessory devices should be color-coded to reduce the likelihood of wiring errors. Improper connections can prevent the system from responding properly in the event of a fire.

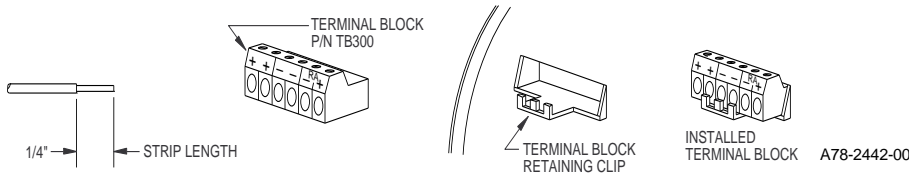


Figure 3. Terminal Block Wiring Guide

The plug-in terminal block will accept 14 – 22 gauge wire. Stranded wire is preferred where 14 or 16 gauge wire is used. For best system performance, all wiring should be installed in separate grounded conduit. Do NOT route fire system wiring through the same conduit as any other electrical wiring.

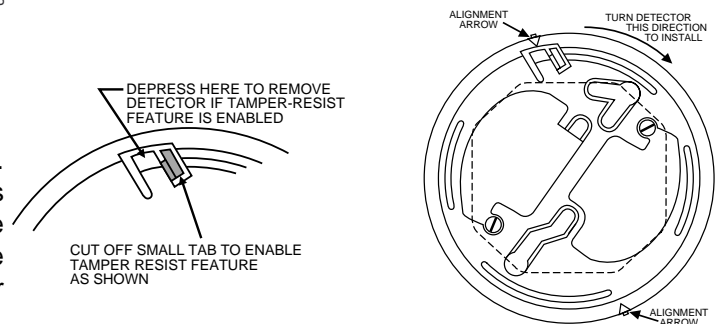


Figure 4. Mounting Bracket Detail

Wire connections are made by stripping approximately 1/4 inch of insulation from the end of the feed wire, inserting the wire into the appropriate terminal, and tightening the terminal screw. Do not overtighten terminal block screws.

CAUTION

Dust covers are an effective way to limit the entry of dust into smoke detector sensing chambers. However, they may not completely prevent airborne dust particles from entering the detector. Therefore, Fire-Lite recommends the removal of detectors before beginning construction or other dust producing activity. Be sure to remove the dust covers from any sensors that were left in place during construction as part of returning the system to service.

TAMPER RESISTANCE

This detector includes a tamper-resist feature that prevents its removal from the bracket without the use of a tool. To activate this feature, remove the smaller tab by breaking it at the scribed line on the tamper resist tab before installing the detector. The tamper resist tab is on the detector mounting bracket.

To remove a tamper-resistant detector from the bracket, use a pocket screwdriver, or similar tool, to depress the tamper-resistant tab and turn the detector counterclockwise. The tab is accessible through the slot on the mounting bracket.

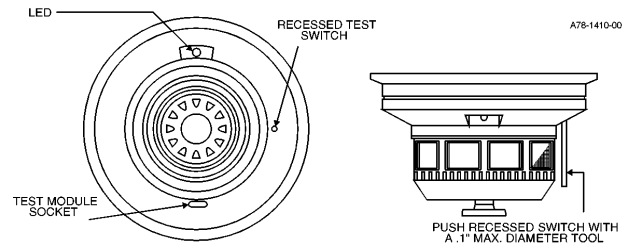


Figure 5. Test Switch Location (Model SD300T(A) Shown)

TESTING

Before testing, notify the proper authorities that the system is undergoing maintenance, and will temporarily be out of service. Disable the system to prevent unwanted alarms.

All detectors must be tested after installation and periodically thereafter. Testing methods must satisfy the Authority Having Jurisdiction (AHJ). For maximum protection, test and maintain all detectors in compliance with the requirements of the National Fire Protection Association (NFPA). The detector can be tested in the following ways:

A. Test Switch

1. Depress test switch with a long, thin tool. An allen key or small screwdriver works well.
2. The LED should latch on within 10 seconds, indicating an alarm and annunciating the panel.

B. Test Module (Model No. MOD400R)

The MOD400R is used with a digital or analog voltmeter to check the detector sensitivity. An acceptable voltage range is stamped on the back of the detector. Test the detector as described in the test module manual.

C. Aerosol Generator (Gemini 501) per NFPA 72

The GEMINI model 501 aerosol generator can be used for smoke entry testing. Set the generator to represent 4%/ft to 5%/ft obscuration as described in the GEMINI 501 manual. Using the bowl shaped applicator, apply aerosol until unit alarms.

A detector that fails any of these tests should be cleaned as described under **CLEANING**, and retested. If the detector fails after cleaning, it must be replaced and returned for repair.

D. Direct Heat Method (1000 to 1500 Watt hair dryer) - SD300T(A) only

Direct the heat from a hair dryer toward the thermal collector. Hold the heat source about 12 inches from the detector to avoid damaging the plastic. The LED should latch on, indicating an alarm and annunciating the panel. The detector resets only after the collector has cooled sufficiently.

When testing is complete, restore the system to normal operation and notify the proper authorities that the system is back in operation.

CLEANING

Before cleaning, notify the proper authorities that the system is undergoing maintenance and will be temporarily out of service. Disable the system to prevent unwanted alarms.

1. Remove the detector to be cleaned from the system by depressing the tamper lock, if it is enabled, and rotating the detector counterclockwise.

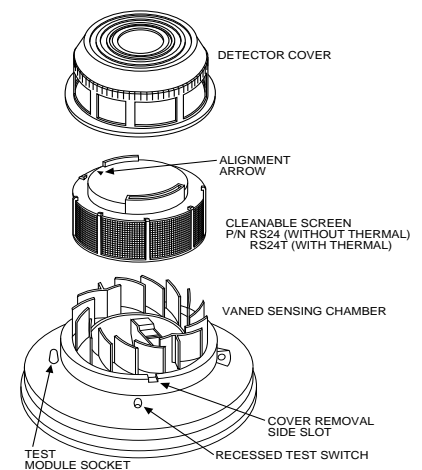


Figure 6.

2. Push terminal block retaining clip away from the terminal block and pull the terminal block straight out of the detector.
3. The detector cover is removed by inserting a small standard blade screwdriver in the side slot of the cover (Figure 6). Rotate the screwdriver slightly until the cover can be turned counterclockwise and removed.
4. Vacuum the outside of the screen carefully without removing it.
5. Remove the detector screen by pulling it straight away from the sensing chamber. Replacement screens are available.
6. Use a vacuum or clean compressed air to remove dust and debris from the sensing chamber.
7. Reinstall or replace the sensing chamber screen. Orient it so that the arrow on top aligns with the test module socket. Carefully push the screen into place, making sure it fits tightly to the sensing chamber.
8. Reinstall detector cover by gently rotating it clockwise until it snaps into place.
9. When all detectors have been cleaned, restore system operation and test the detector(s) as described in the **TESTING** section of this manual.

WARNING

Limitations of Smoke Detectors:

This smoke detector is designed to **activate and initiate** emergency action, but will do so only when it is used in conjunction with an authorized fire alarm system. This detector must be installed in accordance with NFPA standard 72.

Smoke detectors will not work without power. AC or DC powered smoke detectors will not work if the power supply is cut off.

Smoke detectors will not sense fires which start where smoke does not reach the detectors. Smoldering fires typically do not generate a lot of heat which is needed to drive the smoke up to the ceiling where the smoke detector is usually located. For this reason, there may be large delays in detecting a smoldering fire with either an ionization type detector or a photoelectric type detector. Either one of them may alarm only after flaming has initiated which will generate the heat needed to drive the smoke to the ceiling.

Smoke from fires in chimneys, in walls, on roofs or on the other side of a closed door(s) may not reach the smoke detector and alarm it. A detector cannot detect a fire developing on another level of a building quickly or at all. For these reasons, detectors **shall be located on every level and in every bedroom within a building.**

Smoke detectors have sensing limitations, too. Ionization detectors and photoelectric detectors are required to pass fire tests of the flaming and smoldering type. This is to ensure that both can detect a wide range of types of fires. Ionization detectors offer a broad range of fire sensing capability but they are somewhat better at detecting fast flaming fires than slow smoldering fires. Photoelectric detectors sense smoldering fires better than flaming fires which have little, if any, visible smoke. Because fires develop in different ways and are often unpredictable in their growth, neither type of detector is always best, and a given detector may not always provide early warning of a specific type of fire.

In general, detectors cannot be expected to provide warnings for fires resulting from inadequate fire protection practices, violent explosions, escaping gases which ignite, improper storage of flammable liquids like cleaning solvents which ignite, other similar safety hazards, arson, smoking in bed, children playing with matches or lighters, etc. Smoke detectors used in high air velocity conditions may have a delay in alarm due to dilution of smoke densities created by frequent and rapid air exchanges. Additionally, high air velocity environments may create increased dust contamination, demanding more frequent maintenance.

Smoke detectors cannot last forever. Smoke detectors contain electronic parts. Even though smoke detectors are made to last over 10 years, any part can fail at any time. Therefore, smoke detectors shall be replaced after being in service for 10 years. The smoke detector system that this detector is used in must be tested regularly per NFPA 72. This smoke detector should be cleaned regularly per NFPA 72 or at least once a year.

THREE-YEAR LIMITED WARRANTY

Fire-Lite Alarms warrants its enclosed Smoke Detector to be free from defects in materials and workmanship under normal use and service for a period of three years from date of manufacture. Fire-Lite Alarms makes no other express warranty for this Smoke Detector. No agent, representative, dealer, or employee of the Company has the authority to increase or alter the obligations or limitations of this Warranty. The Company's obligation of this Warranty shall be limited to the repair or replacement of any part of the Smoke Detector which is found to be defective in materials or workmanship under normal use and service during the three year period commencing with the date of manufacture. Warranty requests should be directed to:

Fire-Lite Alarms, Inc.
12 Clintonville Rd.
Northford, CT 06472-1653

The Company shall not be obligated to repair or replace units which are found to be defective because of damage, unreasonable use, modifications, or alterations occurring after the date of manufacture. The duration of any implied Warranty, including that of merchantability or fitness for any particular purpose, shall be limited to the period of three years commencing with the date of manufacture. In no case shall the Company be liable for any consequential or incidental damages for breach of this or any other Warranty, expressed or implied whatsoever, even if the loss or damage is caused by the Company's negligence or fault. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you. This Warranty gives you specific legal rights, and you may also have other rights which vary from state to state.
